THE AGRICULTURAL SITUATION

3- JUL 1939

MAY 1939

A Brief Summary of Economic Conditions

Issued Monthly by the Bureau of Agricultural Economics, United States Department of Agriculture

Subscription price, 50 cents per year; single copy, 5 cents; foreign price, 70 cents; payable in cash or money order to the Superintendent of Documents, Government Printing Office, Washington, D. C.

VOLUME 23 - NUMBER 5 - WASHINGTON, D. C.

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NEWS BROKE FAST during the past month: United States Supreme Court Upholds Tobacco Marketing Quota Law * * * Government Officials Push Cotton, Wheat Surplus Disposal Plans * * * Farmers' Income Increased in First Quarter * * * Strike Called in Bituminous Coal Fields * * * Industrial Production Declines in April * * * Wheat Prices Highest in Year. Have prospects been altered for a relatively stable domestic demand for farm products the remainder of this year? Government agricultural analysts think not. Meanwhile, farmers go on with farm work, planting new crops, building up to a seasonal peak of farm activity in June. Five hundred thousand hired hands were added to farm pay rolls in the first quarter of this year. More in April. More this month. Given good weather, there will be plenty of food for the cities.

Commodity Reviews

DEMAND: Unsettled

A NUMBER of events occurred during the past month which contribute to a very uncertain demand outlook for the remainder of 1939. Unfavorable European political developments and the accompanying sharp declines in security prices during March and early April were followed by an extensive coal strike. Industrial activity increased only seasonally during March and declined in April.

Recent developments have helped to postpone and might even prevent altogether, the moderate improvement in business and demand conditions which has been anticipated. But with building construction continuing very active, Government spending at a high level, and most lines of industry doing about as well as could be expected, there is no reason to expect any serious recession even if some of the present uncertainties continue for a time.

A serious effect which could result from the prolongation or intensification of these conditions would be the holding up of business men's commitments for new capital expenditures. Such expenditures have been looked to for a continuation of the 1938–39 business revival when the stimulus furnished by increased building construction and Government spending is lessened.

Despite these potentially unsettling factors, the best appraisal which can now be made continues to point to a year of relative stability in domestic demand conditions. Unfavorable developments may continue to offset more or less the favorable ones, with little change in consumer purchasing power as compared with other recent years in which variations have been marked. There has been almost no change since November in measures of consumers' income, after allowing for the usual seasonal variation.

INCOME: Increase

Farm cash income from marketings and Government payments was slightly larger in the first quarter of 1939 than in the like period in 1938. Total income from marketings was less, but Government payments raised the aggregate of income approximately 8 million dollars above a year earlier.

Marketings of several groups of commodities—grains, vegetables, meat animals, and poultry and eggs—returned larger income in the first quarter this year. Marketings of grains yielded 208 million dollars compared with 141 million in the first quarter of 1938; vegetables 122 million against 118 million; meat animals 476 million against 471 million; poultry and eggs 117 million against 113 million.

Income from all farm marketings was 13 percent larger in March than in February this year, whereas the usual trend is downward in this period. All groups of products except cotton and cottonseed, and tobacco shared in the increase. Income from marketings in April is expected to total about the same as in March.

	Income from marketings	From Government payments	Total
March:			
1939	$487,000,000	$95,000,000	$582,000,000
1938	512,000,000	60,000,000	572,000,000
1937	596,000,000	112,000,000	708,000,000
January–March:			
1939	1,495,000,000	192,000,000	1,687,000,000
1938	1,571,000,000	108,000,000	1,679,000,000
1937	1,739,000,000	207,000,000	1,946,000,000

PRICES: Lower

The index of prices of farm products was 89 in April, during a month of considerable excitement in the commodity markets. Wheat and cotton prices were affected by day-to-day

foreign political events and ended the month higher. Small price declines were rather general among other commodities, notably in hogs, calves, and wool. Milk prices were down sharply.

The index of prices received by farmers—89 as of April 15—compares with 91 in mid-March, and with 94 in April last year. Prices paid by farmers for commodities purchased also are 5 points lower than at this time last year.

Index Numbers of Prices Received and Paid by Farmers

[1910–14=100]

Year and month	Prices received	Prices paid	Buying power of farm products[1]
1938			
April	94	125	75
May	92	125	74
June	92	124	74
July	95	123	77
August	92	122	75
September	95	121	79
October	95	121	79
November	94	121	78
December	96	120	80
1939			
January	94	120	78
February	92	120	77
March	91	120	76
April	89	120	74

[1] Ratio of prices received to prices paid.

EMPLOYMENT: Increase

More than 500,000 hired hands were added to farm pay rolls during the first quarter of 1939. The April 1 total was 2,187,000 hired hands compared with 1,629,000 on January 1, and with 2,287,000 on April 1 last year. Wage rates averaged the same as on April 1 last year—121 percent of the pre-war level. Farm employment usually reaches a seasonal peak in June and again in October.

COTTON: Problem

Cotton growers are busy planting the new season's crop, but not unmindful of the heavy burden of surpluses from 1937 and 1938. Total stocks of American cotton at the beginning of the next marketing season—August 1—will be in excess of an entire year's normal world consumption.

In late April, interest was centering upon the proposed Government export bounty of 2 cents a pound on American cotton. United States cotton exports have been much smaller this season than last. The total from August 1 to May 1 was less than 3 million bales, compared with slightly

Prices of Farm Products

Estimates of average prices received by producers at local farm markets based on reports to the Bureau of Agricultural Economics. Average of reports covering the United States weighted according to relative importance of district and States.

Product	5-year average, August 1909–July 1914	April average, 1910–14	April 1938	March 1939	April 1939	Parity price April 1939
Cotton, lb ... cents	12.4	12.4	[1] 8.24	8.31	8.15	15.6
Corn, bu ... do	64.2	63.4	52.7	44.4	45.4	80.9
Wheat, bu ... do	88.4	89.3	75.0	56.7	57.8	111.4
Hay, ton ... dollars	11.87	12.16	8.17	6.67	6.67	14.96
Potatoes, bu ... cents	69.7	68.8	[1] 54.4	64.6	75.1	85.4
Oats, bu ... do	39.9	40.9	28.3	26.9	27.4	50.3
Soybeans, bu ... do	(2)	(1)	84.9	73.2	78.2	------
Peanuts, lb ... do	4.8	5.0	3.5	3.4	3.4	6.0
Beef cattle, cwt ... dollars	5.21	5.50	6.30	7.00	7.08	6.56
Hogs, cwt ... do	7.22	7.59	7.77	7.10	6.57	9.10
Chickens, lb ... cents	11.4	11.8	16.2	14.3	14.4	14.4
Eggs, doz ... do	21.5	16.6	15.9	16.0	15.5	19.7
Butterfat, lb ... do	26.3	25.9	27.0	22.7	21.4	[3] 33.2
Wool, lb ... do	18.3	18.0	[1] 18.5	20.0	19.7	23.1
Veal calves, cwt ... dollars	6.75	6.76	8.00	8.69	8.38	8.50
Lambs, cwt ... do	5.87	6.46	7.23	7.43	7.88	7.40
Horses, each ... do	136.60	140.40	88.00	83.00	81.50	172.10

[1] Revised. [2] Prices not available. [3] Adjusted for seasonality.

more than 5 million in the like period a year earlier.

In the domestic sector, the best news is the continuing relatively high level of mill consumption. Consumption to date has been much heavier this season than last. Sales of finished goods have been slightly higher than a year ago. Production of automobiles—important industrial outlet for cotton—was increased in late April to the highest level for the year.

Domestic prices continue to be supported by the Government loan program and the resulting withdrawal of more than 11 million bales of American cotton from marketing channels. Prices for Middling ⅞ inch in the 10 spot markets averaged 8.73 cents for the week ended April 30, compared with 8.52 cents in the preceding week, and 8.82 cents in the same week a year earlier.

WHEAT: Heavy Marketings

Wheat prices rose and fell with the quickly changing tides of foreign political events during the last month, but ended the period at best figures in nearly a year. Domestic prices continue above world figures and are likely to maintain this relationship so long as they are supported by Government export and loan programs.

A feature of the month was the heavier volume of marketings by Argentina which had been holding back the movement despite unusually large supplies of wheat for export. Figures on exports indicated that the Argentine exportable surplus, estimated to have been about 229 million bushels on January 1, had been reduced to around 192 million bushels by April 15.

About one-third of the Australian surplus for the marketing year which began last December had been exported by April 1, the bulk going to Oriental countries. Shipments from North America were much larger in April this year than last. Sales of United States wheat for export this exceed 100 million bushels, out of a total of about 250 million available for export.

Government officials from 22 countries met in London last month to find ways of reducing the world wheat surplus and to plan for a better balancing of production and consumption in future years. Slight increases were reported in winter wheat acreage in European countries and in Northern Africa this season, but there has been considerable damage from winter-kill in Europe.

Meanwhile, a winter wheat crop of about 549 million bushels in the United States was indicated by April 1 conditions. This would be about 137 million bushels below the 1938 output. Should the spring wheat crop total 200 million bushels, the grand total for winter and spring wheat may be 750 million bushels, or about 70 million in excess of domestic disappearance during the period 1928–37.

The United States carry-over of old wheat on July 1 next may total about 275 million bushels. The 1939–40 United States supply of wheat—new crop plus July 1 carry-over—may be about 1 billion bushels.

TOBACCO: Planted

A new flue-cured crop is in the ground. Producers reported in March an increase of 11 percent in prospective plantings this year over last. There has been a tendency in the last 5 years to concentrate production on the most suitable lands, to fertilize heavily, and to practice more intensive cultivation. Under these conditions and with a fair season, yields per acre in 1939 are likely to equal or exceed the 1932–36 average.

Prices and returns to growers will depend greatly upon the foreign demand for American flue-cured, since more than half the crop is marketed abroad. United States exports were large in 1937 and 1938. Current stocks of American flue-cured in

'hese stocks are not considered exces-:ve in view of the high rate of con-ımption, but they may prove a eterrent to heavy buying in 1939.

A domestic demand for flue-cured bout the same as in 1938 is in pros-ect. (Burley tobacco growers re-orted prospective plantings about 3 ercent below the 1938 acreage.)

FLAXSEED: Acreage

Flaxseed growers reported they ‹pected to seed about 2 million acres ıis spring. Average yields and ɔandonment on this area would give total production of 12 million to 13 ıillion bushels. The 1938 crop was little more than 8 million bushels. he average of the preceding 10 years as nearly 12 million.

Better domestic demand for flax-:ed is expected this summer and fall ›mpared with last, notwithstanding ıat domestic supplies of competing ıd supplementary drying oils are rger than average. Demand condi-ons in Europe are uncertain. Sup-lies of flaxseed in Argentina are some-hat larger and lower-priced than a ɜar ago.

CATTLE: More on Feed

Marketings of fed cattle in late ›ring and early summer will exceed arketings in corresponding months st year—indicated by a 13-percent crease in number of cattle on feed in ıe Corn Belt this April 1 compared ith last. Principal support to prices ill be the reduced slaughter of cows ıd heifers and the stronger demand r meats than in 1938. Prices during .e first quarter of 1939 were $1 to $2 gher than in the like period of 1938.

Demand for stocker and feeder eers continues strong, with prices at ansas City in early April the highest r the period in 9 years. Stimulating e tendency to increase cattle herds e the abundant supplies of low-priced ɜds and the relatively high prices for ıughter cattle. Carry-over of feed ains at the beginning of the 1939–40 arketing season may be larger than a year earlier, but the feed grain supply per unit of livestock in 1940 will be smaller than in the present year.

Cattle imports, totaling 185,000 head, during the first 2 months of 1939 were the largest for the period on record. Imports of heavy quota cattle totaled 62,000 head, more than half of which came from Canada. The record size of imports, however, was due largely to the 106,000 head of nonquota cattle weighing 200 to 699 pounds (duty 2.5 cents per pound), almost all from Mexico.

The large imports from Mexico apparently were a result of the strong demand for stocker and feeder cattle in the United States, the unsettled economic situation in Mexico, and poor feeding conditions in parts of that country this year.

HOGS: Heavy Marketings

Last fall's pigs are being marketed in larger volume. The 1938 fall pig crop was 18 percent larger than that of the fall of 1937. The seasonal increase in marketings will probably continue into June. Usually there is a seasonal reduction in marketings after midsummer. Prices have been lower this spring than last, because of the heavier marketings.

On the favorable side have been the large exports of pork and lard during the first quarter of 1939. Much of the increase in lard exports has been in shipments to Great Britain. It re-flects the increase in production and the removal of the British duty of 10 percent ad valorem on lard under the United States-Great Britain trade agreement.

April 1 storage stocks of pork and lard were slightly smaller than on that date last year. Usually there is a net movement out of storage in late spring and summer. The out-movement likely will be no heavier this summer than last. This means that the quan-tity of pork and lard available for domestic consumption and export the remainder of the current marketing year will reflect chiefly the increase in slaughter supplies.

The hog-corn price ratio continues to favor an increase in hog production. Hog prices have trended downward since last summer, but corn prices also have declined. The ratio of hog to corn prices has been much above average for 18 consecutive months.

LAMBS: Prices Up

Prices of fed lambs in April were the highest since the beginning of the current fed-lamb marketing season last December. Prices reflected the smaller slaughter supply this season compared with last, and some improvement in consumer demand. Good and Choice slaughter lambs at Chicago the first week in April averaged about $9.60 compared with $8.15 a year earlier.

Marketings of both early lambs and grass fat yearlings will be smaller this season than last. There has been a shortage of green feed, and the development of early lambs in most areas has been below average. It was expected in late April that a much larger than usual number of early lambs in California would not reach slaughter weight and condition this spring and that many would be sold as feeders. Marketings of early lambs in other areas will be later than usual.

The delay in marketings of early lambs and grass fat yearlings means that a fairly large number of early lambs will be ready for market when late lambs also are being marketed in considerable volume. (Slaughter ewes also have been higher priced this season than last, reflecting the relatively strong demand for breeding stock in many areas.)

TRUCK CROPS: Acreage

Acreage of commercial truck crops may be slightly smaller this season than last, but about 11 percent larger than the 1928–37 average. Increases this season over last include asparagus, cantaloups, cucumbers, lettuce, lima beans, green peas, and green peppers. But these are more than offset by decreases of a number of other vegetables.

Growth and development of commercial vegetables were retarded by cold weather over a wide area in early April, and spring plantings were delayed. Only States in the far South escaped frost. California had excellent growing weather, and the spring crops there were reported in good condition.

Marketings of truck crops continued along seasonal lines in April, and prices of a number of vegetables declined. Declines were chiefly on asparagus, snap beans, broccoli, cauliflower, cucumbers, spinach, and squash. Prices advanced on new crop cabbage, carrots, celery, endive, kale, lettuce, sweetpotatoes, and tomatoes.

POTATOES: Prices Up

Potatoes were selling at sharply higher prices in late April. Marketings were light and there was prospect of a relatively small early crop in the Southern States. Price gains were largest in eastern markets. Shipments of old stock were nearing completion.

The movement of new potatoes in April was chiefly from Florida and Texas, but the volume was unusually small. The early crop in these two States was indicated to be about 33 percent smaller than last year's production, and 34 percent less than the 1928–37 average.

Acreage planted in the second section of early and in the second early States was slightly larger this year than last, but growing conditions have been unfavorable. A smaller crop this season than last is in prospect.

Potatoes were being dug in California in late April, with yields averaging higher than in 1938. A few California early potatoes were being received in midwestern markets toward the end of the month.

FRUITS: Little Change

Prices of fruits other than strawberries and lemons were practically unchanged during the past month. Market supplies of all citrus fruits

were heavy, and will likely continue large through summer. Cold-storage holdings of apples on April 1 totaled 9.1 million bushels, about 3 million less than on April 1 last year, but about 800 thousand more than the 1928–37 April 1 average.

Market prices of strawberries in mid-April were the lowest for the season to that date. Weakness reflected heavy marketings from Louisiana. Relatively heavy shipments were in prospect through April and most of May. Production in Louisiana was indicated at 1.4 million crates compared with 1.1 million in 1938, and the crop in the second early States was indicated at 3.7 million crates compared with 2.8 million in 1938.

The *California navel and Florida* orange shipping season will be finished in June, but a large California crop of valencia oranges has been indicated for summer marketing. Production from the 1938 bloom has been indicated at 26 million boxes, compared with 29 million in 1937, and less than 18 million as the 1927–36 average.

Supplies of frozen fruits as of April 1 totaled 91.1 million pounds compared with 102.0 million on the same date last year. Stocks of blueberries and cherries were substantially smaller than in 1938; stocks of strawberries were larger.

DAIRYING: Active

Milk production continues in record high volume. Production per cow was 3 percent larger this April 1 than last, and there are more cows. Butterfat prices have declined in relation to feed prices since the Government stopped buying butter in March, but this has not greatly altered the prospects for dairy production during the coming pasture season. Pasture prospects are not so good this season as last, but substantially better than in the preceding 5 years.

Large quantities of dairy products are being manufactured and going into consumption at lower prices. Out-of-storage movement of manufactured products was unusually heavy in March, but large stocks of creamery butter remain in the possession of the Dairy Products Marketing Association and relief agencies. Commercial stocks are much smaller than at this time last year.

Prices of fluid milk were reduced sharply in many leading markets during late March. This, it is expected, will tend to increase receipts and the consumption of fluid milk in cities, and reduce the quantities that otherwise would be used in the manufacture of dairy products. Largely because of Government distribution to persons on relief, the per capita consumption of dairy products the last 12 months was the highest on record.

POULTRY: More Chicks

Approximately 26 percent more chicks were produced by commercial hatcheries during the first quarter of this year compared with last. Hatcheries reported on April 1 that chicks were moving freely, that orders were 23 percent larger than on April 1 last year. More chicks were sexed in March this year in proportion to the total number hatched than in March a year ago.

On the farms, the production of eggs per flock in early April was the largest since 1930. The number of layers on April was about 4 percent above a year ago, but a little more than 3 percent below the 10-year average for that date. Production of eggs per farm flock during the first quarter of this year was 4 percent larger than in the like period of 1938.

In the West North Central States, production per farm flock on April 1 was about 6 percent above a year ago, in the South Central States about 4 percent above, in the Western States about 2 percent above. The East North Central States showed a decrease of about 3 percent, the North Atlantic a decrease of 5 percent, the South Atlantic States showed no change.

Receipts of dressed poultry at New York in April were about 6 percent larger than in April last year, chiefly because of the heavier production of winter broilers. Storage stocks of frozen poultry in early April also were larger than a year earlier. Poultry marketings during the remainder of 1939 will be larger than in 1938.

TURKEYS: Increase

Evidence accumulates of an increase in turkey production this year. Hatcheries reported an increase of 67 percent in number of turkey eggs set this March compared with last, an increase of 87 percent in number of poults hatched, and an increase of 56 percent in advance orders for poults as of April 1.

Liberal feed supplies and 2 profitable years for turkey growers have stimulated widespread interest in turkeys. Some hatcheries have reported that the increase in number of poults hatched this year will be limited only by the available supply and hatchability of turkey eggs.

EXPORTS, IMPORTS

Figures for foreign trade in agricultural products during the first quarter of 1939 show a widely varying picture as among different commodities. Cotton and tobacco, our leading export commodities, were shipped in smaller amount than during the corresponding period a year ago as well as during the 6-year average period, 1924–29. On the other hand, wheat, apples, and pears were exported in larger amounts than during the average period. Exports of pears were more than double the average for the period, but smaller than in 1938. Pork products were exported in larger quantities than a year earlier but this trade remains very small in comparison with the average period.

On the import side, our purchases of wool, tobacco, sugar, and hides and skins were well below the 1924–29 period although all of them except sugar were larger than was the case a year ago. Imports of cattle, beef, barley malt, and flaxseed were above average.

United States: Exports and Imports of Specified Agricultural Commodities, January–March, Average 1924–29, Annual 1938 and 1939, and March, 1938 and 1939

Commodity	Unit	January–March			March	
		Average 1924–29	1938	1939 preliminary	1938	1939 preliminary
Exports:		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Bacon, hams, and shoulders [1]	Lb	116,835	13,059	17,640	5,748	7,452
Lard, including neutral	Lb	233,098	52,785	75,161	16,047	22,157
Wheat, including flour	Bu	29,355	31,307	35,649	10,565	11,087
Apples, fresh [2]	Bu	4,562	4,082	4,819	1,201	1,192
Pears, fresh	Lb	4,413	14,425	8,885	2,318	1,341
Tobacco, leaf	Lb	129,510	112,938	99,810	34,424	38,215
Cotton, excluding linters (500 pounds)	Bale	2,177	1,565	928	452	346
Imports: [3]						
Cattle	No	51	90	275	43	91
Beef, canned, including corned	Lb	[4] 7,642	12,238	13,196	5,714	5,707
Hides and skins, agriculture	Lb	[5] 98,100	31,748	89,351	9,244	28,688
Barley malt	Lb	[6] 180	29,622	20,052	6,997	7,569
Sugar, excluding beet (2,000 pounds)	Ton	1,224	781	457	304	256
Flaxseed	*Bu*	*4,895*	*4,719*	*6,391*	1,463	2,031
Tobacco, leaf	Lb	19,873	14,520	14,797	7,540	5,480
Wool, excluding free in bond	Bale	[6] 64,936	5,130	21,005	1,028	9,207

[1] Includes Cumberland and Wiltshire sides.
[2] Includes barrels, baskets, and boxes in terms of bushels.
[3] General imports prior to 1938. Subsequently imports for consumption.
[4] Includes a small amount of "Meats canned, other than beef."
[5] Includes reptile and fish skins.
[6] Imports for consumption.

The Wheat Crop Insured

THE 1939 wheat harvest will provide a large-scale test of the principles of crop insurance. Approximately 156,000 policies have been paid by wheat growers, insuring an estimated production of 64 million bushels on 6.6 million acres. To obtain this protection—representing 75 percent of the average production from the insured acres—spring and winter wheat growers in 30 States have paid approximately 6.5 million bushels of wheat into the insurance reserves of the Federal Crop Insurance Corporation.

The wheat crop insurance program swung into action in May 1938, when the first applications were received. It completed a full season of operation on April 29 last, when the last premium payments were received from spring wheat growers and the first indemnities were paid to growers in the Winter Wheat Belt. Growers' applications were taken at planting time or shortly thereafter. More than 305,000 growers applied for insurance—approximately 205,000 in 22 Winter Wheat States and 100,000 in 8 Spring Wheat States.

INSURANCE policies were not issued to growers until premiums were paid. In the major Winter Wheat Belt, the closing date for premiums, November 19, passed with 108,500 payments on file. In the Spring Wheat Belt, preliminary estimates indicate that 47,300 payments were received in county AAA offices up to the closing date. An amendment on March 27, 1939, providing for advances against future AAA payment to pay crop insurance premiums, made it possible for many spring wheat growers to obtain insurance.

The experience of the first year of wheat crop insurance is evidence that the program is working out successfully along the lines laid down for it. The settlement of losses which have been sustained by insured growers is just beginning, but the preliminary work in this part of the program shows that adjustment of losses should prove no more difficult than the establishment of yield and premium rates.

The Corporation has completed groundwork for the 1940 program which will be made known to farmers within the next few weeks. Improvements deal largely with administrative details which permit more efficient and economical operation. The basic principles of the plan remain the same.

THE principal change in the program is the use of a 13-year base, 1926–38, for the determination of average yields and premium rates for individual farms. It is believed that the use of the 13-year base period will not change insurable yields or premium rates very much for the average grower. However, for the grower who experienced unusually bad luck during the shorter base period used in 1939 (1926–35) the addition of the 3 years, 1936–38, may result in a yield and premium rate more closely in line with actual long-time risk of wheat growing.

County committees are completing the calculation of these rates for all wheat farms, either by use of historical yields or appraisal under a "key" farm system. Every wheat grower (except in a few counties where wheat is not an important crop) will receive a notice stating the insurable yield and the premium rate for his farm. Growers may then apply for crop insurance on their 1940 crop and the insurance will go into effect as soon as the premium is paid and the crop is planted.

Another improvement is the adoption of a special practices procedure which enables the Corporation to give due weight in yield and rate to use by the farmer of improved practices such as summer fallowing and irrigation which will tend to decrease risks and increase stability of yields.

THE extensive participation in the 1939 program, and the wide variation in the type of farm insured, would seem proof that the principle of basing crop insurance on the past experience of the individual farm and county is sound. Study of the participation reveals there is no overloading of the program by either "high-risk" or "low-risk" producers.

The "in-kind" feature of the program, under which all computations are made in terms of bushels of wheat, has created no difficulties. Ninety-nine percent of the growers found it more feasible to pay premiums in cash equivalent, but the principle of an "all-wheat" program, with the reserve carried in actual wheat in storage to factor out price changes, has been easily grasped by most growers.

Field administration by farmer committees of the AAA has proved effective and efficient. One of the major improvements for 1940 is the decentralization of much of the work, placing more responsibility on county and State committees for calculating yields and premium rates according to Corporation formulae, writing insurance, collecting premiums, and adjusting losses.

J. A. BIRD,
Federal Crop Insurance Corporation.

Prices of Farm Machinery [1]

PRICES of farm machinery in 1938 were close to the highest figures in nearly 30 years of Government record. Prices declined somewhat from 1929 to 1933, but then rose sharply, and in 1938 prices of farm machinery other than motor vehicles were 58 percent above the 1910–14 level. The peak for the 30-year period was in 1920, approximately 65 percent above prewar. Prices of motor vehicles—automobiles trucks and tractors—also rose rapidly from 1933 to 1938 after a small decline in the great depression.

The course of prices during the last 30 years is shown upon the accompanying chart of revised index numbers constructed by the Bureau of Agricultural Economics to improve the measures of changes in prices farmers pay for commodities, and for used in measuring parity prices and income relationships. The collection of data for revising the series was begun in 1936 as a part of a comprehensive study of income from agriculture. The principal developments are:

(1) The inclusion of more machinery items and extending back to 1910 the price series for a number of items formerly included only in later years.

(2) The construction of a new index-number series of prices paid by farmers for motor vehicles used in production from 1917 to date.

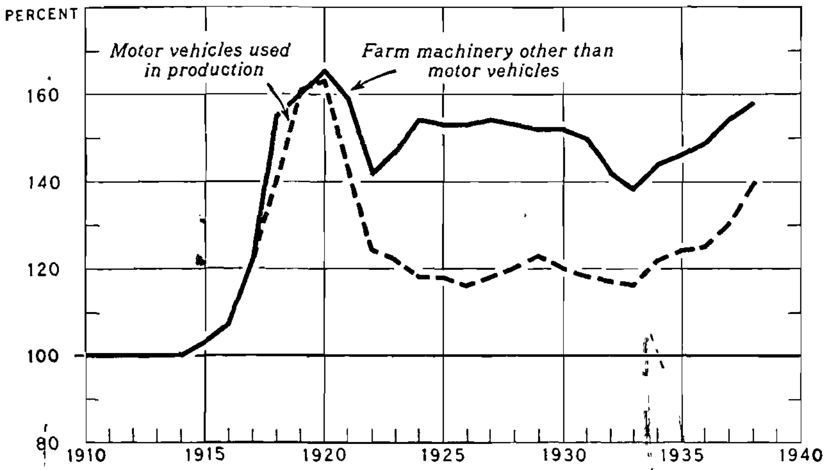
PRICES paid by farmers for mowers, hay racks, hay loaders and some other farm machines are twice as high as they were from 1910–14. Prices of one-horse walking plows, corn and cotton planters, riding cultivators, and binders are almost twice as high as they were 25 to 30 years ago. Prices of small gas engines, cream separators, and grain threshers, on the other hand, have increased relatively little. Prices of automobiles and tractors are considerably lower than in pre-war days.

Before 1917, the prices of motor vehicles seemed to be unrelated to the prices of other commodities generally. Available data indicate that prices of both automobiles and tractors declined about 40 percent from 1910 to 1917, whereas commodity prices in genera[illegible]

[1] Estimates prepared by A. G. Peterson for the Income Committee, Bureau of Agricultural Economics.

PRICES PAID BY FARMERS FOR MOTOR VEHICLES AND OTHER FARM MACHINERY, 1910-38

INDEX NUMBERS (1910-14=100)



this period, automobiles and tractors were in an experimental stage. Manufacturers were trying to develop types suitable for users and were experimenting with the market to determine the prices at which machines could be produced and sold.

THE quality and utility of many of the farm-machinery items, as well as other items the farmer buys, change over a period of years. No definite allowance can be made, as a practical matter, in the series of prices or of index numbers of prices for such changes. Any careful or critical appraisal of changes in prices, however, must take into account the fact that the commodities represented may not be exactly the same between two points of time that are far apart.

O. C. Stine,
Chairman, Income Committee.

Eighty Billion Dollars—When?

IT HAS been said from time to time that the effectiveness of agricultural programs depends in large measure on business conditions in general and that farm prices and farm income cannot reach "parity" levels without a substantially larger volume of industrial production and industrial employment. More recently, attention has been drawn to the desirability of attaining an 80- or a 100-billion dollar national income, for with national income at that higher level and the equivalent volume of industrial production, unemployment would disappear and farmers and city consumers would have larger money purchasing power.

What volume of industrial production would be required in 1939 to give us a national income of 80 billion dollars? What volume in 1940? Is an 80-billion dollar income likely in 1940 or 1941 if only a normal rise in production takes place from now on? These and similar questions could be answered in part if we could establish the normal relation between the volume of production and the national income.

FOR purposes of measuring the money income of all consumers and their effective demand for farm products, the estimates of the national income of the Department of Com-

merce defined as "National Income Paid Out" are generally useful. This aggregate of money income represents the receipts of individuals from the production of goods and services. These receipts include wages, salaries, dividends, interest, royalties, rents, pensions, and work relief. According to the Department of Commerce estimates as slightly modified by the AAA, they rose to nearly 80 billion dollars in 1929, fell to 46 billions in 1933, reached 71 billions in 1937, and receded to 66 billions in 1938.

The basic factor in national income is of course the volume of goods and services produced. Variations in production cause variations in total payments in wages, salaries, interest, dividends, royalties and rents, but no comprehensive index of all production of goods and services is available. The index of industrial production (manufacturing and mining), which reflects also the fluctuations in the volume of other production and services, may be used as an approximation.

An additional basic factor in the aggregate of national income is the general average of prices of the goods and services produced. For this too we lack a comprehensive measure, but a general price index like the Bureau of Labor Statistics index of cost of living may be used tentatively. This index, consisting of prices of foods, clothing, household goods, furnishings, rent, and other items, covers a large part of the aggregate of money payments directly or indirectly associated with production, and may therefore be used to represent the changes in the average price per unit of the goods and services that go to produce the money total of the national income.

THE national income paid out in any given year appears to depend primarily on the volume and prices of the given year and in part on the volume and prices of the previous year. This lag is probably due to the fact that (1) certain industries, particularly servicing industries, do not immediately respond to a change in industrial production, and (2) certain disbursements like dividends are not all made in the year when produced. For this reason, there is a fairly close correspondence between the national income estimates and the index of value of industrial production (see chart "Industrial Production, Prices, and National Income") especially when income is compared with a two-year average of the value index.[1] This correspondence is also shown by the fact that the income estimates for the years 1919 to 1938 inclusive when arranged in relation to the corresponding value indexes (see chart "Value of Industrial Production and National Income") fall along a well-defined line of relationship.[2]

FROM this relationship, it appears that the value of industrial production in 1939 and 1940 must average about 30 percent above the level of the first 4 months of 1939 to bring about a national income of 80 billion dollars. Assuming that the general index of prices remains unchanged at the 1938 average, the national income for 1940 would of course be dependent upon the volume of industrial production in 1939 and 1940.

To date this year the index of industrial production has been 98 percent of the 1923–25 average. Suppose it averages only 100 for the entire year 1939. To obtain a 2-year weighted average of the value index for 1940 that would be the equivalent of an 80-billion dollar income, the volume of industrial production in 1940 would have to average 135 to 140. If the 1939 average of industrial production were to be 110, industrial production

[1] Weighting the current year's index 2 and the previous year's index 1.

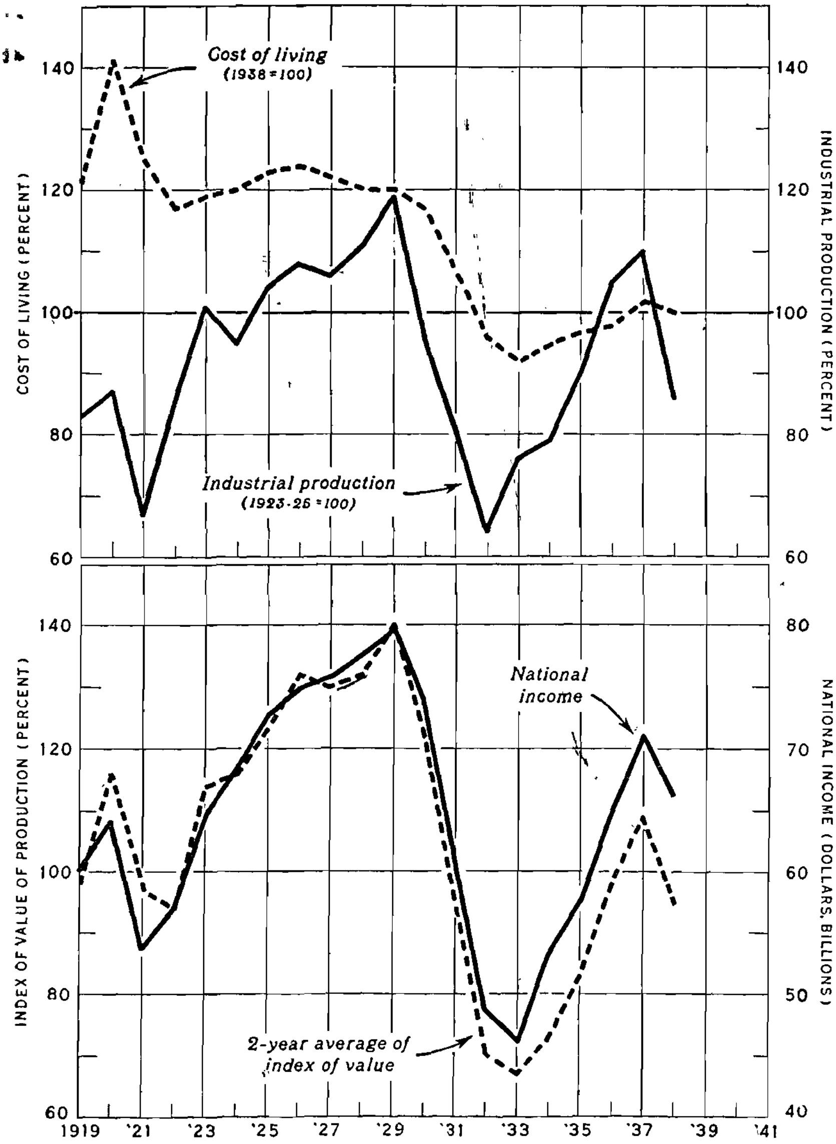
[2] The result in the chart "Value of Industrial Production and National Income" is obtained by taking into account a shift in the relationship as shown in column 6 of the accompanying table, "Factors Related to the National Income." This shift may be due to the fact that an increasing proportion of the national income is derived from services not adequately represented by the industrial production index. It may also be due in part to generally conceded imperfections in each of the three series involved. None of the series are perfect measures of the things they are intended to or are here used to represent and each is, of course, subject to current

in 1940 would have to average 130 to 135.

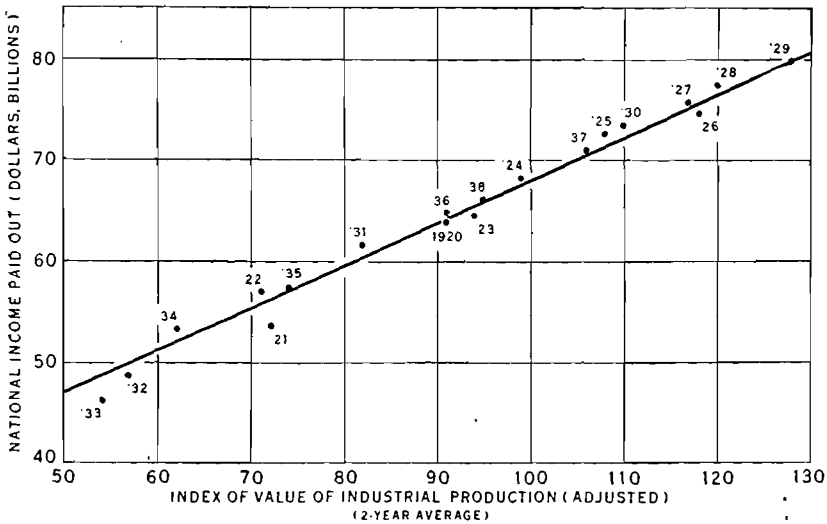
Such increases in industrial production, were they to develop, would of course be accompanied by increases in prices of some raw materials, but they would not necessarily bring about any material change in the general average of prices of goods and services. Judging from the course of the price index in the following chart, a vigorous rise in industrial production could take place either with no increase in the general average of living costs or no more than a 3 or 4 percent increase.

FROM these facts and relationships, we may conclude that an 80-billion-dollar national income is out

INDUSTRIAL PRODUCTION, PRICES, AND NATIONAL INCOME



VALUE OF INDUSTRIAL PRODUCTION AND NATIONAL INCOME



of the question for 1939. It seems out of the question for 1940 unless private enterprise in cooperation with Government discovers ways and means of bringing about a sharper increase in industrial production in the very near future than we have ever had before (excepting the summer months of 1933).

Industrial activity in 1940 would need to be about 40 percent above the April 1939 volume if an 80 billion-dollar national income is to materialize in that year but a change of this magnitude is quite outside our experience. Certainly there have been no such advances in yearly output during the last 20 years. Even in the active years 1922, 1923, and 1936 the Federal Reserve Board index of industrial production averaged only 18, 16, and 15

Factors Related to the National Income

	National income[1] (billion dollars)	Industrial production (1923-25=100)	Index of cost of living[2] (1938=100)	Value of industrial production[3]	2-year average[4]	Adjustment for trend	Adjusted 2-year average
1919	60.2	83	121	101	----------	----------	----------
1920	64.1	87	141	123	116	−25	91
1921	53.6	67	125	84	97	−25	72
1922	57.0	85	117	100	94	−23	71
1923	64.5	101	119	121	114	−20	94
1924	68.2	95	120	114	116	−17	99
1925	72.6	104	123	128	123	−15	108
1926	74.8	108	124	134	132	−14	118
1927	75.7	106	122	129	130	−13	117
1928	77.4	111	120	134	132	−12	120
1929	79.7	119	120	143	140	−12	128
1930	73.5	96	117	112	123	−13	110
1931	61.6	81	107	87	95	−13	82
1932	48.6	64	96	62	70	−13	57
1933	46.1	76	92	70	67	−13	54
1934	53.2	79	95	75	73	−11	62
1935	57.6	90	97	88	83	−9	74
1936	64.8	105	98	103	98	−7	91
1937	71.0	110	102	112	109	−3	106
1938	66.0	86	100	86	95	0	95

[1] AAA series, nonagricultural income paid out plus agricultural income produced.
[2] Bureau of Labor Statistics, with 1938 taken as 100.
[3] Index of cost of living (1938=100) times index of industrial production (1923-25=100).
[4] Weighting currrent year 2, previous year 1.

NOTE.—The relation between the first and last columns is shown in chr-

points higher respectively than in the corresponding previous years.

THE foregoing facts should be studied in conjunction with those contained in the article on Industrial Unemployment and the Farmer in the January 1939 issue of *The Agricultural Situation.* It was shown there that even if industrial production following the depression of 1937–38 pursued a typical course (which it is not now doing), it would not reach a level in 1940 or 1941 adequate to bring about full employment nor the levels that are shown here as necessary to attain an 80-billion-dollar national income.

For full employment, our objective should be set at something more than an 80-billion-dollar national income and appropriate steps should be taken to discover the potential avenues of industrial expansion and the means by which both private and Government investment may bring about the volume of production required for full employment.

L. H. BEAN.

Freight Rates on Wheat, Cotton, Livestock

PRELIMINARY indexes of railroad freight rates on shipments of wheat, cotton, and livestock in the United States indicate that rates on these commodities will average higher during the crop year which began July 1, 1938, than during the preceding year. Largest increases appear in livestock rates. Advances in indexes of rates on wheat and cotton are moderate. Preliminary indexes for 1938 are presented in the accompanying Table 1, and compared with values of the same indexes for previous years.

THE advances in the 1938 indexes reflect in part the general increases of 5 percent in railroad freight rates on agricultural commodities authorized by the Interstate Commerce Commission in Ex Parte 123, the *Fifteen Percent Case, 1937–38*, 226 I. C. C. 41, the decision in which was reported March 8, 1938. Underlying this decision was the admittedly urgent need of the railroads for additional revenues. The authorized horizontal increases of 5 percent in agricultural freight rates, and 10 percent in nonagricultural freight rates, with certain exceptions and limitations, became generally effective on March 28, 1938.

Not all the increases in the rate indexes here discussed can be attributed to the general advances in freight rates accomplished under the authority cited above. Numerous rates which were voluntarily reduced by the carriers during the years of severe depression, either to meet truck competition, or to encourage shipments which would have been unprofitable to the shippers on the so-called "normal" rates, were restored in 1938 to levels at or near those regarded as "normal." While these increases were doubtless made with some reference to the ability of the shippers to bear the charges, it seems clear that they were based primarily upon the revenue needs of the carriers.

THE 1938 index of rates on wheat shipments stands at 145, five points or 4 percent above the value of 140 for 1937. The gain in the wheat rate index reflects no rate changes of significance other than the general increases of 5 percent already mentioned. Since these general increases became effective on March 28, 1938, or 3 months before the 1937 crop year expired, the rate index for 1937 takes some account of them. The full 5 percent advance is consequently not revealed by comparison of the 1937 and 1938 indexes. It is accurately reflected, however, in the difference between the index value of 138 for 1936, and the value of 145 for 1938.

While freight rates on wheat, according to this index, have risen 45 percent since 1913, the recent advances did not restore them to their peaks of 1920, when the index stood at 164 The present level is several points under that which obtained during the years 1922–28.

PRONOUNCED variations have occurred during the last few years in railroad freight rates on cotton. The preliminary index of cotton rates for 1938 stands at 106, up 4 points or 4 percent from the 1937 value of 102. The advance from the low of 95 in 1933 and 1934 to 106 in 1938 is substantial, and indeed may have a considerable impact upon cotton movement in view of the currently depressed state of the growers, but the present rate level is appreciably lower than in 1921 when the index reached a peak value of 176, or in 1929 when the index stood at 163. Reference to the foregoing table of rate indexes discloses that the influence of depression and motor truck competition upon railroad cotton rates has been profoundly greater than upon rates on grain and livestock.

The increases in rates authorized in the decision cited were ordered to include the flat increases in cotton rates made effective on July 31, 1937. *Owing to this condition, blanket increases* in rates on cotton effective in late March and early April 1938 amounted to considerably less than 5 percent. Selective advances, however, occurred later in the year, notably on July 31, August 1, and September 6, 1938. The authority to effect these later increases derived from the circumstance that many of the cotton rates were far below the maxima previously prescribed as reasonable by the Interstate Commerce Commission, and the carriers were at liberty to restore them to old levels without violating any outstanding orders of the Commission. The increases authorized in Ex Parte 123 applied to these prescribed maximum reasonable rates, and not to the voluntarily reduced rates on which the traffic was actually moving.

Table 1.—Index Numbers of Freight Rates on Livestock, Wheat, and Cotton, 1913, 1920, 1925, and 1929–38 [1]

[1913=100]

Year beginning July	Livestock											Wheat	Cotton [2]
	Cattle				Hogs			Sheep			Total		
	Western district	Eastern district	Southern district	United States	Western district	Eastern district	United States	Western district	Eastern district	United States			
1913	100	100	100	100	100	100	100	100	100	100	100	100	100
1920	166	207	148	170	161	222	172	152	225	164	170	164	171
1925	152	199	136	158	150	214	161	135	200	145	157	150	166
1929	151	195	136	156	150	199	159	135	181	142	155	146	163
1930	151	190	136	156	150	198	158	135	183	142	155	146	159
1931	157	187	136	160	149	198	158	135	185	143	155	139	139
1932	163	186	136	165	147	199	156	134	185	142	155	146	106
1933	161	186	136	163	146	199	155	134	185	142	155	146	95
1934	153	186	136	157	133	191	144	132	185	140	146	146	95
1935	150	186	136	154	131	190	141	132	185	140	144	139	97
1936	150	186	136	154	131	190	142	132	185	140	144	138	97
1937 [3]	151	189	137	155	134	192	144	134	187	142	147	140	102
1938 [4]	168	197	142	171	154	209	164	141	193	149	163	145	106

[1] These indexes are arithmetic averages of freight rate relatives, in the weighting of which consideration was given to the tonnage movement on the different rates, either through assignment of formal weights governed by tonnage movement, or through distribution of the number of rates included for different areas in rough accord with tonnage moved. The rate relatives are based on the average of rates successively in effect during the crop year. In determining the annual averages, successively applicable rates are weighted in proportion to the number of days effective. For other years, see Agricultural Statistics for 1938, table 646, p. 527.

[2] Beginning 1932 alternative rates, depending on loading, were established. To preserve comparability rate for highest weight to which shippers could load without having cotton compressed at own expense was used in computation of index.

[3] Revised.

[4] Preliminary. Based on rates in effect through Jan. 10, 1939.

SUBSTANTIAL gains over 1937 are recorded by the 1938 indexes of railroad freight rates on cattle, sheep, and hogs. For the United States as a whole, the gain was from 147 in 1937 to 163 in 1938, an advance of 16 points, or 11 percent. The change in the index resulted in part from the general 5 percent increases of March 28, 1938, noted in connection with wheat and cotton, and in part from selective increases effective on or about July 1, 1938, which restored certain voluntarily reduced rates to levels at or near the old "normal" levels. In 1929 the livestock index stood at 155, and remained at that figure until 1934. From the carriers' viewpoint, this approximates the old "normal" level. The 1938 index of 163 is 5 percent above this level.

The selective increases which went into effect on or about July 1, 1938, affected principally the rates on cattle and hogs. No significant modification of sheep rates took place at that time. The extent of the selective increases is evidenced by the increases from 1937 to 1938 in the national indexes of rates on cattle, sheep, and hogs, as follows: Cattle rates, 10 percent; hog rates, 14 percent; and sheep rates, 5 percent. The change to be ascribed solely to the general increases in March 1938 is slightly less than 5 percent for each of the three indexes; the excess is due to the selective increases which took effect for the most part on July 1, 1938.

THE magnitude of a freight rate on an agricultural product becomes significant only when compared with other costs of producing the product at market, and with the price received for the product by the producer at the shipping point, or by the vendor at the destination market. In order to give meaning to the freight rate indexes, their values for the years 1913, 1929, and 1938 are compared in the accompanying table 2 with relatives to the base 1913 of average farm prices of wheat, cotton, and livestock, during the same years.

This comparison discloses that, in relation to 1913 levels, agricultural freight rates are higher this year than farm prices of the commodities on which they apply. The severity of this depression of farm prices in relation to freight rates on farm products is revealed by the percentage ratios of the farm price relatives to the corresponding indexes of freight rates. The relative disparity is the greatest between wheat rates and wheat prices, and least between the rates and prices applicable to beef cattle and cotton, respectively.

THE percentage ratios in Table 2 also provide evidence of a drastic decline of farm prices since 1929 in relation to corresponding freight rates.

Table 2.—Comparison of Indexes of Farm Prices and Freight Rates for Beef Cattle, Sheep, Hogs, Wheat, and Cotton, United States, 1913, 1929, and 1938

[1913=100]

Commodity	1913	1929			1938 [1]		
		Farm prices [2]	Freight rates	Ratio of prices to rates	Farm prices [2]	Freight rates [3]	Ratio of price index to rate index
				Percent			*Percent*
Beef cattle	100	155	156	99	111	171	65
Sheep	100	166	142	117	77	149	52
Hogs	100	125	159	79	104	164	63
Wheat	100	130	146	89	70	145	48
Cotton	100	134	164	82	69	106	65

[1] Preliminary.
[2] Calendar year for beef cattle, sheep, and hogs; year beginning July 1 for wheat; year beginning August 1 for cotton.
[3] These indexes are based on rates in effect through Jan. 10, 1939, only.

Owing to this relative decline in agricultural commodity prices, freight charges now absorb a materially increased proportion of the destination value of agricultural freight.

The selection of 1913 as a basis for comparison is consistent with the postulate that farm prices bore a "normal" relationship to prices of nonagricultural goods and services in that year. The perspective is expanded, however, by the presentation of price and rate indexes for 1929.

C. C. MATLOCK.

Crop Estimating—An Appraisal

CROP and livestock reports need to be both accurate and timely. The greatest accuracy could be obtained by means of a complete annual census or enumeration of the harvested acreage and production of each of the various crops and of the number of each of the kinds of livestock. Such a census could not be taken, however, until after the harvest was completed in all parts of the country, and then several months at least would be required to edit and tabulate the returns. By the time the figures could be released the need for the information as a basis for selling and buying the current season's crops would be over—the crops would have passed almost entirely out of the hands of the farmer. A complete census is also expensive. Forecasts in advance of harvest and current annual estimates of crop production immediately following harvest, therefore, are necessarily based on sample data rather than on complete enumerations.

ESTIMATES of production are made each year for 120 separate crops for the United States and for individual States. The annual estimates of crop production, exclusive of tree and bush crops, are made by multiplying the estimates of acreage harvested by estimates of yield per harvested acre. The Federal agricultural census enumeration, now taken every 5 years, furnishes the base or starting point for annual estimates of acreage in the various crops in subsequent years. The percentage change in acreage from year to year is estimated from a sample of individual farms showing acreages in the various crops obtained by mail from farmers in all parts of the country. The estimate of change is applied to the estimate of acreage for the previous year (and to the base year if the previous year is not a census year) in arriving at an estimate of acreage for the current year.

THE Federal census establishes the level of the acreage whereas the annual sample data determine the change in acreage from year to year or from the base (census) year to the current year. It is apparent that the reliability of annual acreage estimates depends upon (1) the completeness and accuracy of the Federal census enumerations of crop acreages used as "bench marks" by the Department in making annual estimates, and (2) the size and representativeness of the annual samples of crop acreages use in estimating year-to-year change in acreage.

Fully half the crops for which the Department of Agriculture makes annual estimates of acreage and production were not included in the "short" Federal census schedule of either 1924 or 1934. Even in the fairly comprehensive 1929 census schedule fully one-fourth of the crops either were not included or were only "written in" on the schedule. Most of the localized commercial crops that were included in 1929, either on the regular schedule or on supplementary schedules, were so incompletely covered that the census data have been of little value as bench marks for subsequent annual estimates.

Even with the major crops there are two serious problems—(1) *incompleteness* of coverage either of all farms within an enumeration district or of all the items on the schedule by the enumerator when he interviews the farmer; (2) *lack of comparability* from one census to the next either in the way the questions are asked or in the date when the census is taken.

Incompleteness of the census enumeration could be largely overcome, first, by inaugurating a system of enumeration control based on identification of individual farms on detailed maps for each enumeration district; second, by holding down the length of the schedule and avoiding questions that require a lot of calculation on the part of the farmer; and, third, by employing better qualified enumerators. The date of enumeration should be fixed as of January 1 or earlier. A date later than January 1 leads into serious inaccuracies because many farmers have moved and do not know what crops were produced the previous year on the farms they occupy when the census enumerator calls.

THE problem of obtaining a sample that will accurately reflect changes in acreage of the various crops (or in numbers of livestock) is one of the most difficult the crop estimator has to face. The crop reporter at one time was asked to state the changes from one year to another in the acreage of a particular crop such as corn, wheat, or cotton, in his locality, but experience has shown he is unable to gage these changes with reasonable accuracy.

The farmer usually knows the acreages devoted to the various crops on the farm he is operating, but he knows this in terms of approximate acres and not as a percentage change from the previous year. Two main acreage surveys are made each year—the acreage in growing crops in June from the crop reporters of the Department, and the fall survey of acreage for harvest made by the rural carriers of the Post Office Department.

Unfortunately, neither of these methods of acreage sampling furnishes any information on new farms that are being operated for the first time or on old farms that are being abandoned or used for nonagricultural purposes. There is also the problem of selectivity or bias that arises from the fact that a large group of farmers—nonresident or suitcase farmers, tenants who move frequently, farmers of poor education, and those who are uncooperative or of a highly suspicious nature—seldom become regular crop reporters and are not likely to respond on the Rural Carrier Survey. Farms operated by such persons are not represented in the samples from which acreage estimates are made.

The way out of this difficulty of selectivity of acreage samples is to have enumerators obtain acreages of the various crops from a sample of individual farms by personal interviews. Valid statistical methods could be used in designing a sample that would be representative of all kinds of farms. The enumerator would then, in person, ask for the desired information for these objectively selected farms. This method of conducting a *sample census* has been tried experimentally with good results but it is much more expensive than obtaining a sample by mail or with the help of the Rural Carrier.

WHEN samples are used instead of a complete enumeration there is always the problem of having a sample large enough to give "serviceable accuracy" to the average or other statistics calculated from the sample, assuming, of course, the sample is not selective and is free from bias. Data relating to the acreage of a given crop on individual farms vary greatly from farm to farm even in the same locality and from year to year on the same farm. For statistical purposes the acreage of a crop on some farms may be "zero," on others it may be hundreds or even thousands of acres. Some farms may not grow the crop at all one year and may have a substantial acreage of that crop in another year. Variability in acreage of a crop has no well-defined limits established by nature as is the case with yield per acre of a crop.

The greater the variability in the data, the larger the sample needed to

obtain a desired degree of precision. If one kind of data has twice the variability of another kind, the sample must be four times as large to give equal precision to the averages.

One advantage of the Rural Carrier acreage sample is its large size. Ten thousand to 12,000 reports are received in some of the larger and more important agricultural States. This number is adequate to give serviceable accuracy for acreage estimates for the entire State, and is reasonably satisfactory in making estimates by crop-reporting districts, of which there are 6 to 10 in the *States of average size.* But when a sample, even as large as 12,000, is broken down among say 100 counties there are only 120 reports for a county, and a sample of this size is not sufficient for serviceable accuracy. This principle of statistics explains why it is easier to make a reliable estimate for a region as large as a State than for an area as small as a county.

THE problem of making reliable estimates of yield per acre for various crops does not involve as many serious difficulties as the problem of estimating acreage. The well-informed crop correspondent is usually well qualified to estimate the yield per acre for a given crop on his own farm and usually on a number of farms in the neighborhood. It is entirely practicable, therefore, to use these "judgment" (for the locality) reports on yield as the direct basis for annual estimates of yield per acre. However, the yields per acre derived from census data serve as a useful check in census years and as a measure of bias that is applied to the current year's sample. Any incompleteness in the census coverage of farms is not likely to be serious, so far as yield per acre is concerned, unless the enumerator consistently fails to get either the lower- or higher-yielding farms in his district. However, the nearer the time of taking the census to the completion of harvest, the more reliable are the census data on yield per acre. Late fall would be the ideal time to take the Federal census of agriculture—before farmers have moved to other farms.

THE problem of selectivity of the sample is much less serious with the judgment inquiry on yields than is the case with the individual farm inquiry on acreage. Selectivity, however, must be guarded against. In recent years the regular judgment inquiry on yields has been supplemented by an individual farm inquiry on acreage and production, from which a yield per acre is derived. As might be expected, such an inquiry is selective of the more productive farms in most States and the yields obtained are used primarily in a relative way to indicate year-to-year changes. Judgment yield inquiries obtained from operators of grain elevators also are used in some States to supplement the returns from regular crop reporters.

The yield-per-acre data, whether from the judgment inquiry for the locality or from the individual farm inquiry, are much less variable than are acreage data. Nature sets up limits to the variation in yield per acre. Consequently, the size of sample need not be anywhere near so large for a given degree of precision as with acreage samples.

THE greatest weakness or source of error in the data and methods now in use in estimating yield per acre is the *cash-crop bias*—under statement—that appears in the sample data for certain, if not all, commercial crops. This cash-crop bias is not consistent from year to year in the same State or among States in the same year.

To meet the problem of cash-crop bias in yield sample data the Department is experimenting with pre-harvest field surveys for cotton, wheat, corn, and apples. There is a need for further development and use of such methods based on physical measurements of yield taken from representative fields whereby the factor of human bias is held to a minimum or eliminated. Additional trained crop estimators are needed to obtain a sample of sufficient size, as these surveys involve actual counts and measurements—size of ear in the case of corn, head

samples for wheat, boll counts and weights for cotton—made in commercial fields over wide areas.

ESTIMATES of production are made by *multiplying the estimates* of harvested acreage by estimates of yield per acre. In the case of a number of commercial crops, marketing or processing records are obtained and used in truing up estimates of production for the previous year. A complete record of the quantity of cotton ginned each year is made by the Census Bureau. Reasonably complete information is obtained on total annual sales of such crops as tobacco, peanuts, rice, sugar, and canning crops. Railroad shipments and mill door receipts are obtained for wheat, rye, and flax in a number of States.

When the total quantity of a crop sold is considered along with estimates of farm utilization for seed, carry-over on the farm into the next season, and other farm uses, an estimate of production can be made for a crop that is independent of the production estimate based on acreage and yield per acre. These estimates based on sales are useful in assisting the crop estimator in finding and measuring bias in the data and methods used in making the current estimates. Every effort is being made to get data on sales, market movement, and processing of commercial crops.

C. F. SARLE.

The problem of forecasting the production of crops prior to harvest will be discussed in the June issue.

Production, Consumption of Dairy Products

MILK production in 1938 reached a new peak about 4 percent higher than in 1937, and 2 percent above the preceding high in 1933. The per capita production of milk in 1938 of 845 pounds was somewhat less than in the period 1931–33 but 3 percent larger than the 1924–29 average. Total consumption of all dairy products in 1938 was slightly larger than in 1937 but somewhat low in relation to production.

Consumption of fluid milk and cream in 1938 was probably somewhat less than in 1937. Receipts of these products at the three principal eastern markets, which are a fairly good measure of consumption in those markets, were less than in 1937.

With total milk production higher than a year earlier, and with some tendency for fluid consumption to decline, the total production of manufactured dairy products in 1938 reached a new peak, about 7 percent higher than a year earlier, and 17 percent above the 1924–29 average. Production per capita was the highest in more than 40 years and 5 percent above the average for the predepression period 1924–29. Consumption of manufactured dairy products per capita in 1938 was slightly higher than a year earlier and 2 percent greater than the 1924–29 average.

CREAMERY butter production in 1938 was estimated to be 10 percent larger than in 1937, and slightly larger than the preceding peak in 1933. If farm butter production in 1938 was the same as in 1937 total butter production was only slightly less than the high point reached in 1933. Per capita production of butter in 1938 was the same as the average for the predepression period 1924–29. Consumption per capita however was 3 percent less than the 1924–29 average.

Total cheese production in 1938 was 10 percent larger than in 1937 and 50 percent larger than the 1924–29 average. Per capita consumption of cheese in 1938 of 5.75 pounds compares with 4.60 pounds in the period 1924–29.

Production and consumption of condensed milk (case goods) continued to decline.

Production of evaporated milk reached a new high in 1938, being 10 percent larger than in 1937 and 2 percent larger than the preceding peak in 1936. Per capita consumption of evaporated milk also reached a new high in 1938, about 56 percent greater than the 1924–29 average.

The sales index of the International Ice Cream Manufacturers Association indicated that sales of ice cream during the first 8 months of 1938 were about 5 percent less than in the same period of 1937. Even with this decline, per capita production in 1938 was not greatly different than the average for the predepression period 1924–29.

The year 1938 was a year of high milk production and unusually high production of manufactured dairy products. Consumption of manufactured dairy products was relatively high compared with other years, but somewhat low in relation to production.

E. E. VIAL.

Per Capita Production and Consumption of All Dairy Products, 1924–29 Average and 1930–38

Period	All dairy products (milk equivalent)[1]	Manufactured dairy products (milk equivalent)[2]	Butter[3]	Cheese[4]	Condensed milk case goods[5]	Evaporated milk case goods[5]	Ice cream[6]	Malted milk	Dried whole milk
	Per capita production								
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Gallons*	*Pounds*	*Pounds*
Average 1924–29	823	466	17.7	4.06	1.39	10.86	1.98	0.171	0.088
1930	837	459	17.2	4.07	0.99	11.77	1.96	0.184	0.125
1931	853	466	17.8	3.97	0.79	11.51	1.68	0.155	0.102
1932	854	470	18.3	3.87	0.56	12.57	1.24	0.106	0.096
1933	855	484	18.7	4.32	0.43	13.65	1.18	0.099	0.104
1934	824	471	17.8	4.57	0.48	13.52	1.42	0.107	0.125
1935	817	464	17.1	4.87	0.41	14.42	1.56	0.121	0.152
1936	825	465	16.8	5.00	0.37	15.91	1.90	0.144	0.142
1937	820	460	16.5	5.02	0.37	14.72	2.17	0.153	0.106
1938[7]	845	491	17.7	5.48	0.32	16.07	2.05	0.152	0.168
	Per capita consumption[8]								
Average 1924–29	805	467	17.6	4.60	1.00	9.93	1.98	0.151	0.082
1930	818	465	17.3	4.61	0.80	11.25	1.96	0.162	0.096
1931	840	475	18.1	4.47	0.66	11.50	1.68	0.139	0.056
1932	834	474	18.3	4.37	0.47	12.39	1.24	0.092	0.076
1933	815	467	17.9	4.49	0.42	12.38	1.18	0.085	0.088
1934	816	483	18.3	4.84	0.40	13.49	1.42	0.091	0.118
1935	804	472	17.3	5.24	0.39	14.64	1.56	0.102	0.148
1936	800	462	16.6	5.35	0.36	14.10	1.90	0.120	0.150
1937	808	469	16.7	5.51	0.33	14.93	2.17	0.124	0.108
1938[7]	808	477	17.0	5.75	0.27	15.49	2.05	0.119	0.126

[1] Milk production by cows on farms plus estimated production by cows not on farms.

[2] Includes farm and factory butter, all cheese, except cottage, pot and bakers', condensed milk unskimmed case and bulk, evaporated milk unskimmed, commercial ice cream, malted milk, dried whole milk, and dried cream.

[3] Farm and factory butter.

[4] All cheese except cottage, pot, and bakers'.

[5] Case goods unskimmed.

[6] Commercial ice cream. Production in 1937 and 1938 not strictly comparable with preceding years because of inclusion of production of counter freezers and small retailers not previously included. Consumption and production assumed to be the same.

[7] The 1938 data are preliminary.

[8] Consumption calculated from data on production, foreign trade, shipments to noncontiguous territories and stocks. For all dairy products the amount of milk fed to calves was deducted to obtain human consumption.

Marketing Quota Law Upheld

THE constitutional validity of the tobacco marketing quota provisions of the Agricultural Adjustment Act of 1938 was upheld by the Supreme Court of the United States on April 17, 1939, affirming a decision of the District Court of the United States for the Middle District of Georgia (Valdosta Division), in *James H. Mulford et al.* v. *Nat Smith et al.* The Court held:

(1) The provisions of the act under review constitute a valid regulation of interstate and foreign commerce, and do not purport to control production;

(2) That such provisions contain no undue delegation of power to the Secretary of Agriculture in the establishment of quotas; and

(3) That, since quotas operate not on farm production but upon the marketing of tobacco in interstate and foreign commerce, the provisions of the act were validly applied to flue-cured tobacco produced in 1938 prior to the establishment of farm marketing quotas.

UNDER the act a national marketing quota is effective when the total supply exceeds the reserve supply level and the quota is approved by two-thirds of the farmers voting in a referendum. The reserve supply level is a supply 5 percent above the normal supply. A farm marketing quota is that quantity of tobacco which may be marketed without penalty. The penalty for the marketing of tobacco in excess of a farm marketing quota is 50 percent of the market price or three cents per pound, whichever is higher. The penalty is paid by the warehouseman, but may be deducted from the price paid the farmer.

In the case above, producers of flue-cured tobacco sought to restrain the warehouseman from deducting penalties.

ROBERT H. SHIELDS.

Measures of Domestic Demand

[1924-29=100]

	March				Percent change		
	1929	1933	1938	1939	1938-39	1933-39	1929-39
National income	105.3	57.5	87.5	90.1	+3	+57	−14
Nonagricultural income:							
Total	105.8	60.5	89.5	92.2	+3	+52	−13
Per capita	101.3	56.1	79.4	81.3	+2	+45	−20
Factory pay rolls:							
Total	106.9	36.2	73.0	82.1	+12	+127	−23
Per employed wage earner	102.0	58.5	83.9	90.7	+8	+55	−11
Industrial production:							
Total	110.5	55.2	74.0	91.7	+24	+66	−17
Factories processing farm products	105.8	82.7	87.5	106.5	+22	+29	+1
Other factory production	115.3	39.1	63.1	82.4	+31	+111	−29
Construction activity:							
Contracts awarded, total	100.0	11.6	38.0	56.2	+48	+385	−44
Contracts awarded, residential	90.4	7.2	29.6	51.9	+75	+621	−43
Employment in production of building materials	95.5	31.8	56.9	61.3	+8	+93	−36
Cost of living:							
Food	97.7	57.6	75.7	73.6	−3	+28	−25
"All other items"	98.3	81.1	86.1	85.6	(1)	+6	−13
Purchasing power of nonagricultural income per capita:							
For food	103.7	97.4	104.9	110.5	+5	+13	+7
For "All other items"	103.1	69.2	92.2	95.0	+3	+37	−8

[1] Less than ½ of 1 percent.

NOTE.—All indexes adjusted for seasonal variations except "Cost of Living."

General Trend of Prices and Wages

[1910-14=100]

Year and month	Wholesale prices of all commodities [1]	Industrial wages [2]	Prices paid by farmers for commodities used in [3]—			Farm wages	Taxes [4]
			Living	Production	Living and production		
1920	225	222	222	174	201	242	209
1921	142	203	161	141	152	155	223
1922	141	197	156	139	149	151	224
1923	147	214	160	141	152	169	228
1924	143	218	159	143	152	173	228
1925	151	223	164	147	157	176	232
1926	146	229	162	146	155	179	232
1927	139	231	159	145	153	179	238
1928	141	232	160	148	155	179	239
1929	139	236	158	147	153	180	241
1930	126	227	148	140	145	167	238
1931	107	208	126	122	124	130	217
1932	95	179	108	107	107	96	188
1933	96	172	109	108	109	85	161
1934	109	183	122	125	123	95	153
1935	117	192	124	126	125	103	155
1936	118	200	122	126	124	111	156
1937	126	215	128	135	130	126	161
1938	115	207	122	124	122	124	
1938—March	116	208	123	128	125		
April	115	204			125	121	
May	114	201			125		
June	114	202	122	126	124		
July	115	205			123	129	
August	114	209			122		
September	114	214	121	122	121		
October	113	212			121	126	
November	113	207			121		
December	112	212	120	122	120		
1939—January	112	211			[5] 120	117	
February	112	213			[5] 120		
March	112	218	119	122	[5] 120		

Year and month	Index of prices received by farmers [August 1909-July 1914=100]								Ratio of prices received to prices paid
	Grains	Cotton and cottonseed	Fruits	Truck crops	Meat animals	Dairy products	Chickens and eggs	All groups	
1920	232	248	191		174	198	223	211	105
1921	112	101	157		109	156	162	125	82
1922	106	156	174		114	143	141	132	89
1923	113	216	137		107	159	146	142	93
1924	129	212	125	150	110	149	149	143	94
1925	157	177	172	153	140	153	163	156	99
1926	131	122	138	143	147	152	159	145	94
1927	128	128	144	121	140	155	144	139	91
1928	130	152	176	159	151	158	153	149	96
1929	120	144	141	149	156	157	162	146	95
1930	100	102	162	140	133	137	129	126	87
1931	63	63	98	117	92	108	100	87	70
1932	44	47	82	102	63	83	82	65	61
1933	62	64	74	105	60	82	75	70	64
1934	93	99	100	103	68	95	89	90	73
1935	103	101	91	125	118	108	117	108	86
1936	108	100	100	111	121	119	115	114	92
1937	126	95	122	123	132	124	111	121	93
1938	74	70	73	101	114	109	108	95	78
1938—March	85	70	69	101	117	117	93	96	77
April	82	71	68	98	114	110	93	94	75
May	79	71	77	88	111	103	98	92	74
June	77	68	73	92	116	98	99	92	74
July	72	71	79	99	123	101	103	95	77
August	62	69	78	92	115	102	105	92	75
September	63	69	75	107	117	104	118	95	79
October	60	72	70	107	111	107	124	95	79
November	60	73	71	102	111	109	131	94	78
December	63	70	73	108	109	112	127	96	80
1939—January	66	71	76	96	112	109	97	94	78
February	66	70	78	108	116	107	91	92	77
March	66	71	81	114	116	100	88	91	76
April	67	70	82	102	114	95	87	89	[5] 74

[1] Bureau of Labor Statistics Index with 1926=100, divided by its 1910-14 average of 68.5.
[2] Average weekly earnings, New York State factories. June 1914=100.
[3] These indexes are based on retail prices paid by farmers for commodities used in living and production reported quarterly for March, June, September, and December. The indexes for other months are interpolations between the successive quarterly indexes.
[4] Index of farm real estate taxes, per acre, 1913=100.
[5] Preliminary.

U. S. GOVERNMENT PRINTING OFFICE: 1939